

## CLAIMS

### What is claimed is:

1. A composition comprising a fiber which comprises or has coated thereon a thin film wherein said thin film comprises or is produced from a fluorocarbon silane or an emulsion, said emulsion comprises or is produced from (1) a fluorocarbon silane or its hydrolyzate, (2) water, and (3) optionally a surfactant, an alkoxy silane compound, a catalyst, or combinations of two or more thereof; said fluorocarbon silane has the formula  $R_f-(CH_2)_p-Si\{-(O-CH_2CH_2)_n-OR^1\}_3$ ;  $R_f$  is a  $C_{3-18}$  perfluoroalkyl group or combinations of two or more thereof; each  $R^1$  is independently one or more  $C_{1-3}$  alkyl groups;  $p$  is 2 to 4; and  $n$  is 2 to 10.
2. The composition of claim 1 wherein said thin film further comprises, or is further produced from, a copolycondensate of said fluorocarbon silane and an alkoxy silane.
3. The composition of claim 1 wherein said thin film has a thickness of less than 1,000 nm.
4. The composition of claim 2 wherein said thin film has a thickness of less than 1,000 nm.
5. The composition of claim 1 wherein said fiber is an aromatic polyamide fiber, an aromatic polyester fiber, a heterocyclic aromatic fiber, or combinations of two or more thereof.
6. The composition of claim 2 wherein said fiber is an aromatic polyamide fiber, an aromatic polyester fiber, a heterocyclic aromatic fiber, or combinations of two or more thereof.
7. The composition of claim 3 wherein said fiber is an aromatic polyamide fiber, an aromatic polyester fiber, a heterocyclic aromatic fiber, or combinations of two or more thereof.
8. The composition of claim 4 wherein said fiber is an aromatic polyamide fiber, an aromatic polyester fiber, a heterocyclic aromatic fiber, or combinations of two or more thereof.
9. The composition of claim 5 wherein said fiber is a p-phenylene terephthalamide fiber.

10. The composition of claim 6 wherein said fiber is a p-phenylene terephthalamide fiber.

11. The composition of claim 7 wherein said fiber is a p-phenylene terephthalamide fiber.

5 12. The composition of claim 8 wherein said fiber is a p-phenylene terephthalamide fiber.

13. A textile product comprising or produced from a fiber having coated thereon an emulsion, which comprises or is produced from (1) a fluorocarbon silane or its hydrolyzate, (2) water, and (3) optionally a surfactant, an alkoxysilane compound, a catalyst, or combinations of two or more thereof.

14. The product of claim 13 wherein said product is a woven product, a knit product, a nonwoven fabric, or combinations of two or more thereof.

15. The product of claim 14 wherein said product is a woven fabric for protective clothing.

15 16. The product of claim 14 wherein said product is a firefighting apparel.

17. The product of claim 14 wherein said product is a glove.

18. A process comprising combining a fluorocarbon silane or its hydrolyzate, water, and optionally a surfactant, an alkoxysilane compound, a catalyst, or combinations of two or more thereof to produce a mixture and optionally heating said mixture to produce an emulsion wherein said fluorocarbon silane having the formula  $R_f-(CH_2)_p-Si\{(O-CH_2CH_2)_n-OR^1\}_3$ ;  $R_f$  is a  $C_{3-18}$  perfluoroalkyl group or combinations of two or more thereof; each  $R^1$  is independently one or more  $C_{1-3}$  alkyl groups;  $p$  is 2 to 4; and  $n$  is 2 to 10.

19. The process of claim 18 further comprising producing a thin film of said emulsion onto a fiber wherein said thin film has a thickness of less than 1000 nm.

20. The process of claim 19 wherein said thin film further comprises, or is further produced from, a copolycondensate of said fluorocarbon silane and an alkoxysilane.

21. The process of claim 19 wherein said fiber is an aromatic polyamide fiber, an aromatic polyester fiber, a heterocyclic aromatic fiber, or combinations of two or more thereof.

22. The process of claim 20 wherein said fiber is an aromatic polyamide fiber, an aromatic polyester fiber, a heterocyclic aromatic fiber, or combinations of two or more thereof.

23. The process of claim 18 further comprising producing a thin film of said  
5 emulsion onto a textile product wherein said thin film has a thickness of less than 1000 nm.

24. The process of claim 23 wherein said thin film further comprises, or is produced from, a copolycondensate of said fluorocarbon silane and an alkoxysilane.

25. The process of claim 24 further comprising producing a product which  
10 is a woven product, a knit product, a nonwoven fabric, or combinations of two or more thereof.

26. The process of claim 25 wherein said product is a woven fabric for protective clothing.

27. The process of claim 25 wherein said product is a firefighting apparel.

15 28. The process of claim 25 wherein said product is a glove.